

Appl. No. 09/704,848  
Amdt. dated June 30, 2003  
Reply to Office Action of 03/28/2003

Docket No. 45051-00004USPX  
P 1874-108US LB

antenna system of Pal '227 is described as including L-band antenna elements and S-band antenna elements provided in the form of quadrifilar helices spaced from each other on the surface of a hollow cylindrical insulator. UHF band antenna elements are described by Pal '227 as being provided in the form of a cage dipole on the surface of the hollow cylindrical insulator. However, Applicant respectfully submits that Pal '227 fails to teach or suggest at least one of the distinguishing features of independent claim 1.

Independent claim 1 is directed to an external antenna device for a portable telecommunication apparatus, said external antenna device having a first antenna adapted for telecommunication in at least a first frequency band and a second antenna adapted for short-range supplementary communication in a second frequency band, characterized in that the first and second antennas are formed on a common support element, said common support element comprising a flexible dielectric film contained in a flexible housing.

The Office Action asserts that Pal '227 teaches a "multiband antenna array for use with portable hand held radios, comprising a flexible antenna support composed of an insulator sheet 4 of Kapton™, with printed circuit antenna elements 1-3 all resonant in respective bands and covered by a flexible radome 11." The Office Action further asserts that "the entire antenna including the housing 11 is deemed flexible because of its use on a hand held radio, and by virtue of the thin plastic material used in the substrate 4 and radome 11" (see page 2 of the Office Action). Applicant respectfully disagrees with the assertions of the Office Action with regard to Pal '227. The Office Action appears to equate the "hollow cylindrical insulator 4" of Pal '227

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Docket No. 45051-00004USPX  
P 1874-108US LB

with the "common support element" of claim 1. The Office Action asserts that the hollow cylindrical insulator 4 is flexible because it may comprised of an insulator sheet of Kapton™ material. Column 1, lines 54-57 describes that the insulator is rolled into a hollow cylindrical insulator forming quadrifilar helices. Although Kapton™ material may be flexible per se, there is no teaching or suggestion in Pal '227 that the Kapton™ insulator sheet when rolled to form a hollow cylindrical insulator would result in a flexible structure.

The Office Action further appears to equate the "radome 11" of Pal '227 with the "flexible housing" of claim 1. However, Applicant respectfully disagrees with the assertion that "the housing 11 is deemed flexible because of its use on a hand held radio, and by virtue of the thin plastic material used in the substrate 4 and radome 11". Applicant submits that use on a hand held radio is not an indication of flexibility for an external antenna device, as many external antennas used for hand held devices are not flexible. Furthermore, there is no teaching or suggestion in Pal '227 of the thickness of the material used to form the hollow cylindrical insulator 4 or radome 11. Accordingly, there is no teaching or suggestion by Pal '227 that the thickness of the material used to form the hollow cylindrical insulator 4 or radome 11 could be such that as to make the radome 11 flexible.

In addition, although the Pal '227 reference describes a multiband antenna system having L-band, S-band and UHF-band antenna elements, Applicant submits that there is no teaching or suggestion by Pal '227 of ". . . . a first antenna adapted for telecommunication in at least a first frequency band and a second antenna adapted for short-range supplementary communication in a

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Docket No. 45051-00004USPX  
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second frequency band" as found in claim 1. Therefore, for at least the foregoing reasons, Applicant respectfully submits that independent claim 1 distinguishes over Pal '227 and requests that the 35 U.S.C. 102(e) rejection of claim 1 be withdrawn.

Independent claim 11 is directed to a portable telecommunication apparatus, said portable telecommunication apparatus including an external antenna device having a first antenna adapted for telecommunication in at least a first frequency band, and a second antenna adapted for short-range supplementary communication in a second frequency band, characterized in that the first and second antennas are formed on a common support element, said common support element comprising a flexible dielectric film contained in a flexible housing. For similar reasons as those discussed in regard to independent claim 1, Applicant respectfully submits that independent claim 11 distinguishes over Pal '227 and requests that the 35 U.S.C. 102(b) rejection of claim 11 be withdrawn.

Claims 2, 4, 5, 7-10, 16/11, 17-19 and 24 are dependent upon and further limit independent claims 1 and 11. Therefore, for at least the reasons as discussed in regard to independent claims 1 and 11, Applicant respectfully submits that claims 2, 4, 5, 7-10, 16/11, 17-19 and 24 distinguish over Pal '227 and requests that the 35 U.S.C. 102(b) rejection of claims 2, 4, 5, 7-10, 16/11, 17-19 and 24 be withdrawn.

Claims 1, 2, 4, 5, 7-11, 12, 16/11, 16/12, 17-19, and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application GB 2322011 A to Pal et. al. ("Pal '011") in view of Pal '227. Pal '011 describes an antenna having a truncated cylindrical support

24 comprised of a first set 26 of spiral elements, equiangularly displaced about the cylindrical support 24 and lying between respective pairs of a second set of elements 28, also helical and angularly equi-spaced around the truncated cylinder support (see page 9, lines 15-19 of Pal '011). The truncated cylindrical support 24 is described as being assembled within a hollow cylindrical radome 42 made of low loss, radio transparent material. (see page 10, lines 25-29 of Pal '011). However, Applicant respectfully submits that Pal '011 fails to teach or suggest at least one of the distinguishing features of independent claim 1 and 11.

The Office Action asserts that "it is obvious to the skilled artisan that the whip antenna formed by the flexible film and radome, combined, provide a flexible whip always desired in a portable receiver." Applicant respectfully disagrees with the assertions of the Office Action with regard to Pal '011. The Office Action appears to equate the "truncated cylindrical support 24" and "radome 42" of Pal '011 with the "common support element" and "flexible housing" of claims 1 and 11. Although Pal '011 describes that the truncated cylindrical support 24 is formed from the rolling of first and second flexible printed circuit boards, Applicant submits that there is no teaching or suggestion that the resulting truncated cylindrical support 24 is flexible. In addition, Applicant submits that there is also no teaching or suggestion in Pal '011 that the hollow cylindrical radome 42 itself is flexible. Page 12, lines 1-6 of Pal '011 describes that the radome 42 serves to protect the elements 26 and 28 of the antenna 20, together with the matching networks 30 and 32, from mechanical, climatic, and chemical ingress, thus preserving the matching and resonance characteristics of the antenna 20. Applicant respectfully submits that from the fact that

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Docket No. 45051-00004USPX  
P 1874-108US LB

an intended function of the radome 42 as described by Pal '011 is to protect the elements of the antenna from mechanical ingress, it appears that the antenna is prevented from possessing flexibility by the radome 42. In addition, Pal '011 describes in page 8, lines 22-28 that the antenna may be insertable into or retracted from the body of a handset, or can be made to swivel to allow the antenna to remain vertical for best polar diagram response. Applicant submits that there is no teaching or suggestion by Pal '011 which would lead one to believe that the antenna of Pal '011 could be flexible.

The Office Action attempts to rely on Pal '227 to overcome the deficiencies of Pal '011. However, as discussed in regard to the 102(b) rejection of claims 1 and 11, Pal '227 also fails to teach or suggest at least one distinguishing feature of claims 1 and 11. Accordingly, Applicant respectfully submits that independent claims 1 and 11 distinguish over Pal '011 in view of Pal '227 and requests that the 35 U.S.C. 103(a) rejection of claims 1 and 11 be withdrawn.

Claims 2, 4, 5, 7-10, 16/11, 16/12, 17-19 and 24 are dependent upon and further limit independent claims 1 and 11. Therefore, for at least the reasons as discussed in regard to independent claims 1 and 11, Applicant respectfully submits that claims 2, 4, 5, 7-10, 16/11, 16/12, 17-19 and 24 also distinguish over Pal '011 in view of Pal '227 and requests that the 35 U.S.C. 103(a) rejection of claims 2, 4, 5, 7-10, 16/11, 16/12, 17-19 and 24 be withdrawn.

Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Pal '011 in view of Pal '227 as applied to claims 1, 4, and 5, and in further view of U.S. Patent No. 5,926,139 to Korisch ("Korisch"). Claim 6 is dependent upon and further limits independent

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P 1874-108US LB

claim 1. As discussed in regard to the 35 U.S.C. 103(a) rejection of claim 1, independent claim 1 distinguishes over Pal '011 in view of Pal '227. Korisch was cited by the Office Action as describing an inverted-F antenna comprised of "a planar device formed on a substate." However, Applicant respectfully submits that Korisch fails to cure the aforementioned deficiencies of Pal '011 in view of Pal '227. In view of the foregoing, Applicant respectfully submits that claim 6 distinguishes over Pal '011 in view of Pal '227 and in further view of Korisch and requests that the 35 U.S.C. 103(a) rejection of claim 6 be withdrawn.

Claims 20-23 have been indicated as allowable. Claims 13-15, 16/13, 16/14, 16/15 stand objected to as being dependent upon a rejected base claim, but were indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant wishes to thank the Examiner for the indication of allowable subject matter.

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Docket No. 45051-00004USPX  
P 1874-108US LB

In view of the above, it is believed that this application is in condition for allowance, and  
such a Notice is respectfully requested.

Respectfully submitted,

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